

OUTCOMES BASED LEARNING MATRIX

Course: ARCHITECTURAL DESIGN ARCH-226

Department: ARCHITECTURAL TECHNOLOGY

Course Description: Basic design elements of buildings are analyzed. The student applies the code requirements to bubble and function diagrams. Upon completion of data, students prepare their own designs. Individual instruction is given to students in the development of sketches to express their concepts. The first two projects emphasize the planning, design, and materials. The last project includes emphasis on design pertaining to structural and mechanical systems. 3 credits

*COURSE OUTCOMES	OUTCOMES ACTIVITIES	ASSESSMENT TOOLS
<p>1. The student shall be able to reference the building codes as they pertain to construction to comply with building codes</p>	<ul style="list-style-type: none"> - Listen to lecture on the types of codes in the building industry - Read the text - Reference the building code - View videos - Look at previous examples - Analyze existing examples <p>R, W, CT, TS, OC, QS</p>	<ul style="list-style-type: none"> - Professor evaluation of the design plans as to the reference to applicable codes - Professor evaluation of checklist for applicable portions of building code requirements - Professor evaluation of drawings as they pertain to the building code - Professor evaluation of site plan drawings as it pertains to zoning code - Checklist of preformed functions - Professor evaluation of written report for thoroughness and completeness pertaining to criteria required in applicable portions of the building codes - Professor evaluation of overall oral presentation Profession evaluation of models and drawings complementing oral presentation <p>R, W, CT, TS, OC, QS</p>
<p>2. The student shall be able to implement zoning plans and criteria for limitations of use of construction for occupancy of building pertaining to use</p>	<ul style="list-style-type: none"> - Listen to lecture pertaining to using the zoning plans and criteria - Use sample zoning plans to determine use of land - Research code for criteria requirement - Discuss examples of zoning, multiuse zoning and variances when zoning does 	<ul style="list-style-type: none"> - Professor evaluation of drawings for compliance to zoning - Professor evaluation of oral and graphic presentation which includes site plan as part of presentation drawings - Professor evaluation of written report pertaining to design

	<p>not comply to desired use</p> <ul style="list-style-type: none"> - Interpret zoning codes - Create drawings indicating net buildable areas - Take pertinent notes from codes as applies to site plan <p>R, W, CT, TS, QS, QS</p>	<ul style="list-style-type: none"> - Written and graphic feedback - Oral Feedback <p>Checklist of expected code requirements R, W, CT, TS, QS, QS</p>
<p>3. The student shall be able to recognize building types by style to design compatible features and coordinate design</p>	<ul style="list-style-type: none"> - Listen to lecture - Review construction systems for economic justification of re-use and renovation - View examples of previous work by architects - Compare results of how others have designed a building to be compatible by complimenting or contrasting aesthetics - Create and analyze study models <p>R, W, CT, TS, QS, QS</p>	<ul style="list-style-type: none"> - Professor evaluation of drawings for compliance to building code - Professor evaluation of oral and graphic presentation which includes floor plan sections and elevations - Professor evaluation of written report pertaining to criteria use for design - Written and graphic feedback - Oral Feedback <p>R, W, CT, TS, QS, QS</p>
<p>4. The student shall be able to utilize proper texture, color, balance, proportion, symmetry as applicable when creating the aesthetics of a building to provide an aesthetic structure</p>	<ul style="list-style-type: none"> - Listen to lecture pertaining to color, texture, balance, symmetry, and scale - Compare new and existing buildings - Provide preliminary alternate schemes considering materials, color and texture - Discuss cost factors of materials - Create drawings indicating different elevations with different materials pertaining to scale of module of material for fenestration - Make study models for individual buildings - Make massing models for a complex of buildings -Revise and modify models and drawings as required to provide a more aesthetic 	<ul style="list-style-type: none"> - Professor evaluation of drawings and models of student project based on the program requirements, code compliance and aesthetics. - Professor evaluation of oral and graphic presentation which includes aesthetics pertaining to texture, color balance, proportion, symmetry - Written and graphic feedback - Oral Feedback - Checklist of required drawings <p>R, W, CT, TS, QS, QS</p>

	<p>result R, W, CT, TS, QS, QS</p>	
<p>5. The student shall be able to coordinate existing characteristics from existing to new construction to provide an aesthetic structure</p>	<ul style="list-style-type: none"> - Listen to lecture with examples of buildings being in contrast or complimentary to each other - Analyze existing structural system for new and existing portions of total building concept - Analyze site requirements - Analyze compatibility of engineering requirements such as electrical, mechanical and sprinkler with compatibility to existing - Create new site plans pertaining to addition - Design landscape plans for new complex - Draw a plan utilizing existing connections <p>Write reports</p> <ul style="list-style-type: none"> - Identify obstacles such as subsurface materials - Define net buildable area <p>Apply building codes</p> <ul style="list-style-type: none"> - Evaluate the overall plan for conformance to design and building codes <p>R, W, CT, TS, QS, QS</p>	<p>Professor evaluation of plans and elevations in design for consistency in characteristics of design</p> <ul style="list-style-type: none"> - Professor evaluation of applicable drawings - Professor evaluation of oral and graphic presentation which includes comparison of existing and new drawings and models as required - Professor evaluation of written report pertaining to design - Written and graphic feedback - Oral Feedback - Checklist of compliance with code as coordinated with design drawings <p>R, W, CT, TS, QS, QS</p>
<p>6. The student shall be able to evaluate existing buildings for re-use for economic development considering structural and related engineering systems such as electrical, mechanical, fire suppression and HVAC systems</p>	<ul style="list-style-type: none"> - Listen to lecture on re-use of existing buildings with reference building codes and zoning - Reference building codes - Reference zoning maps - Determine best building use within limitations of zoning - Compare alternate designs - Create drawings 	<ul style="list-style-type: none"> - Professor evaluation of drawings for adaptability and conformance pertaining to design and code compliance - Professor evaluation of oral and graphic presentation - Professor evaluation of written report pertaining to design by student - Written and graphic feedback - Oral Feedback

	<ul style="list-style-type: none"> - Define limitations pertaining to setbacks - Evaluate existing structure - Layout existing structure using CAD for preliminary design on re-use - Build a study model - Describe the advantages and disadvantages of alternate designs - Evaluate final design for aesthetics - Coordinate design with working drawings - Write reports on conclusions <p>R, W, CT, TS, QS, QS</p>	<ul style="list-style-type: none"> - Checklist of presentation requirements <p>R, W, CT, TS, QS, QS</p>
<p>7. The student shall be able to design buildings with consideration to environment to comply with environmental factors and building codes</p>	<ul style="list-style-type: none"> - Listen to lecture on aesthetics and character of surrounding structures and amenities - Analyze natural amenities of the site such as wind, view and olfactory - Analyze created amenities such as pollution, traffic, noise, contamination and adjacent structures - Create schematic diagrams indicating subsurface explorations - Design building by taking advantage of utilizing good natural amenities - Compare existing traffic routes for site - Define the site on drawings - Provide alternate schemes - Describe advantages and disadvantages of alternate schemes - Layout alternate floor plans - Reference other examples pertaining to similar projects - Compare other projects similar in design and function - Apply building codes to preliminary 	<p>Professor evaluation of drawings on design with consideration of natural environment and surrounding structure</p> <ul style="list-style-type: none"> - Professor evaluation of oral and graphic presentation - Professor evaluation of written report pertaining to design by student - Written and graphic feedback - Oral Feedback - Checklist of expected code requirements as implemented in design solutions <p>R, W, CT, TS, QS, QS</p>

	<p>design</p> <ul style="list-style-type: none"> - Compare cost of different systems <p>R, W, CT, TS, QS, QS</p>	
<p>8. The student shall be able to coordinate utilities to minimize construction cost for effective costs of building</p>	<ul style="list-style-type: none"> - Listen to lecture on utilities - Explain using sample drawings - Identify and discuss utility systems - Analyze and discuss utility systems - Compare utility systems and derive a conclusion for a particular system - Develop criteria for evaluating systems - Discuss utility systems for feasibility and cost factors - Read codes as they pertain to utilities - Write a report with a recommendation for selected utility system - Submit a reported on recommended systems - Revise and amend reports based on new information - Create drawings for utilities - Review codes pertaining to utilities <p>R, W, CT, TS, QS, QS</p>	<ul style="list-style-type: none"> - Professor evaluation of plans for legend and diagrams of existing and new utilities - Professor evaluation of drawings for location of utilities on a site plan - Professor evaluation of oral and graphic presentation - Professor evaluation of written report pertaining to design by student - Written and graphic feedback - Oral Feedback - Checklist of expected code requirements pertaining to schematic layout of utility locations <p>R, W, CT, TS, QS, QS</p>
<p>9. The student shall be able to analyze program requirements to provide a building that meet clients needs</p>	<ul style="list-style-type: none"> - Evaluate the client's requirements - Listen to a lecture - Assess client's requirements as applicable to the building - Create bubble diagrams to indicate adjacencies of functions - Draw preliminary plans based on bubble diagrams - Evaluate preliminary plans - Create alternate schemes - Compare alternate schemes - Discuss alternate schemes 	<ul style="list-style-type: none"> - Professor evaluation of the implementation of requirement from bubble diagrams to presentation drawings. - Professor evaluation of drawings for compliance to zoning - Professor evaluation of drawing for compliance to building codes - Professor evaluation of oral and graphic presentation by student - Professor evaluation of written report pertaining to design - Written and graphic feedback

	<ul style="list-style-type: none"> - Develop systems for schemes - Analyze systems for construction cost - Write reports and recommend conclusions - Revise client's requirements - Create mock up reports for clients <p>R, W, CT, TS, QS, QS</p>	<ul style="list-style-type: none"> - Oral Feedback - Checklist of expected code requirements <p>R, W, CT, TS, QS, QS</p>
<p>10. The student shall be able to compliment structural building systems for rehabilitation in order to justify an economic reuse of structure</p>	<ul style="list-style-type: none"> - Listen to lecture on rehabilitation design - Compare new and existing system of buildings for compatibility - Submit an assessment of building systems - Evaluate steel, cast in place, concrete and precast concrete systems - Analyze systems - Prepare a cost analysis for systems - Justify use of a system - Discuss merits of each system - Read reference material pertaining to systems - Create drawings for comparison of systems - Evaluate compatibility of existing and new systems - Write a report on advantages and disadvantages of systems - Write a report recommending a system - Submit a report to a mock up client <p>R, W, CT, TS, QS, QS</p>	<ul style="list-style-type: none"> - Professor evaluation of a drawing indicating compatibility of existing to new structural systems - Professor evaluation of drawings for existing grid - Professor evaluation of oral and graphic presentation of project - Professor evaluation of written report pertaining to design - Written and graphic feedback - Oral Feedback - Checklist of expected code requirements <p>R, W, CT, TS, QS, QS</p>
<p>11. The student shall be able to interpret traffic routes for service to buildings to separate public and employee areas</p>	<ul style="list-style-type: none"> - Listen to lecture on significance of existing vehicular and pedestrian circulation patterns - Perform an assessment of traffic routes for vehicular and pedestrian circulation 	<ul style="list-style-type: none"> - Professor evaluation of drawing as scheme pertains to pedestrian and vehicular circulation - Professor evaluation of drawings for alternate schemes for service to building

	<ul style="list-style-type: none"> -Define commercial and private vehicle traffic routes - Determine access to a building for service - Create a preliminary drawing indicating public and employee circulation within a building - Discuss traffic routes of existing building within a given site complex - Create preliminary drawings indicating proposed alternate schemes - Analyze and compare alternate schemes - Create a scheme noting advantages and disadvantages of selected scheme - Write a report documenting analysis and recommendation - Present a oral report <p>R, W, CT, TS, QS, QS</p>	<ul style="list-style-type: none"> - Professor evaluation of oral and graphic presentation which includes bubble diagrams indicating separation of public and employee areas as implemented on final plan - Professor evaluation of written report pertaining to design - Written and graphic feedback - Oral Feedback - Checklist of expected code requirements <p>R, W, CT, TS, QS, QS</p>
<p>12. The student shall be able to provide presentation drawings to enable a client to understand the conceptual ideas of a proposed future building</p>	<ul style="list-style-type: none"> - Listen to lecture on techniques of presentation and provide drawings pertaining to graphics consistent for presentation - Create CAD floor plans - Create CAD elevations - Create CAD sections - Create manually drawn presentations in different media such as ink, markers, or colored pencils - Draw perspectives of proposed building - Provide a graphic presentation with verbal explanation <p>R, W, CT, TS, QS, QS</p>	<ul style="list-style-type: none"> - Professor evaluation of presentations pertaining to design technique, consistency, and coordination of drawings with model. - - Professor evaluation of drawings for compliance to zoning - Professor evaluation of oral and graphic presentation by student - Professor evaluation of written report pertaining to design - Written and graphic feedback - Oral Feedback - Checklist of expected code requirements - Professor evaluation of graphic and model presentation explaining concepts <p>R, W, CT, TS, QS, QS</p>
<p>13. The student shall be able to create</p>	<ul style="list-style-type: none"> - Listen to lecture on presentations 	<ul style="list-style-type: none"> - Professor evaluation of the technique and

<p>study, mass, and presentation models to provide conceptual interpretation of the massing when there are several buildings</p>	<ul style="list-style-type: none"> - Explain with models significance of presentation and mass models. - Make massing models out of wood with no fenestration for the purpose of suggesting only to suggest shape, proportion and location - Make presentation models utilizing custom made shapes representing buildings Cut contours and assemble to indicate topography of a site on a model - Create components such as windows from plastic or a mirror for a reflecting pool to simulate a function or component of a building in a model <p>R, W, CT, TS, QS, QS</p>	<p>presentation, which includes drawings and model.</p> <ul style="list-style-type: none"> - Professor evaluation of oral and graphic presentation by student - Professor evaluation of written report pertaining to design - Written and graphic feedback - Oral Feedback - Checklist of expected code requirements <p>R, W, CT, TS, QS, QS</p>
<p>14. The student shall be able to analyze a site for a proposed building to conform to building and zoning codes and to consider the amenities of the site</p>	<ul style="list-style-type: none"> - Listen to lecture on site analysis - Present diagrams pertaining to environment and amenities - Apply zoning codes to proposed development - Assess criteria for implementation of proposed building - Reference zoning codes for limitations pertaining to set backs and heights - Create a preliminary drawing based on set backs and heights - Discuss preliminary drawings and create alternate schemes - Evaluate and discuss alternate schemes - Compare alternate schemes - Write a report indicating the advantages and disadvantages of alternate schemes - Redraw schemes as implemented by consideration for better revisions - Oral presentation of graphic illustration 	<ul style="list-style-type: none"> - Professor evaluation of drawings for design as project relates to environment amenities, and aesthetics. - Professor evaluation of drawings for compliance to zoning to applicable building codes - Professor evaluation of oral and graphic presentation by student - Professor evaluation of written report pertaining to design - Written and graphic feedback - Oral Feedback - Checklist of expected code requirements -Professor evaluation of site analysis drawings -Professor evaluation of implementation of merits of site analysis as indicated in final presentation drawings <p>R, W, CT, TS, QS, QS</p>

	for proposed development R, W, CT, TS, QS, QS	
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*Try to express an outcome as an infinitive phrase that concludes this sentence: **At the end of the course, the students should be able to . . .** Finding the line between too general and too specific can be difficult. In an English Composition course, for instance, it is probably too general to say, "The student should be able to write effective essays." It is probably too specific to say, "The student should be able to write an introductory paragraph of at least 50 words, containing an attention-getting device, an announcement of the narrowed topic, and an explicit thesis sentence." Just right might read, "The student will write introductions that gather attention and focus the essay."

**Indicate the Core Competencies that apply to the outcomes activities and assessment tools: Critical Thinking (CT); technology skills (TS); oral communications (OC); quantitative skills (QS); reading (R); writing (w).